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EXAMINER

HANNE, SARA M

ART UNIT

PAPER NUMBER

2179

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/873,476

Applicant(s)

RASOULI, FIROOZ

Examiner

Sara M Hanne

Art Unit

2179

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

1. This action is responsive to the amendment received on June 1, 2004. Claims 2-42 are pending in the application. Applicant has withdrawn claim 1.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-10, 24-26, 28-30, 32-34, 37 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lander et al., US Patent 5982880 and in further view of Shrader, US Patent 6639582.

In reference to Claim 24, 41 and 42, Lander et al. teaches a virtual remote touching system, unit, and method for comprising a sensing unit for each user, each sensing unit capable of determining the first tactile characteristics of it's user's body part (Col. 4, lines 28-30), a computing means for each sensing unit to convert the tactile characteristics from the sensing unit into electronic simulation data (via the regulating device), and a broadcast unit for each user to send the electronic simulation data from one user to another (Figures 3-4 and corresponding text), a receiving unit for each user to receive electronic simulation data (Col. 4, lines 49-55), a second computing means associated with each receiving unit capable of converting the broadcast electronic

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simulation data into a faithful reproduction of the first determined tactile characteristics so that a user can virtually feel the tactile characteristics of another user (Column 3, line 64 – Column 4, line 4). While Lander et al. teaches sensing and transmission of tactile data between two users, they fail to show the substantially identical sensing and receiving unit for each user as recited in the claims. In the same field of the invention, Shrader teaches a sensing and transmission of tactile data similar to that of Lander et al. In addition, Shrader further teaches a substantially identical sensing/receiving unit for each user (Figure 1, Ref. 24 and 25). It would have been obvious to one of ordinary skill in the art, having the teachings of Lander et al. and Shrader before him at the time the invention was made, to modify the tactile sensing and transmission system between two users taught by Lander et al. to include the identical sensing and receiving units of Shrader, in order to obtain a identical sensing and transmission of tactile data. One would have been motivated to make such a combination because a realistic virtual touch would have been obtained, as taught by Shrader.

In reference to Claim 2, Lander et al. teaches the electronic data sent between the broadcasting unit and the transmitter to be sent via Internet (“web-browser means”).

In reference to Claim 3, Lander et al. teaches the transmission of simulation data to be sent using a real-time Internet application so the receiving user can instantly touch the tactile simulation (“live and real-time interactive controllers”, Column 12, line 26 and the example in Column 1, lines 49-58).

In reference to Claim 4, Lander et al. teaches the broadcasting unit to be comprised of a broadcasting device (regulating device), a base (host computer), a sensor (input sensor), and a data acquisition device (control device).

In reference to Claims 5 and 25, Lander et al. teaches a tactile sensor connected to the broadcasting device to detect tactile characteristics of an engaging body part ("the actual movement of such a device is monitored by absolute or relative optical encoders that provide electrical signals indicative of that movement", Column 1, lines 65-67) and the broadcasting device generating a signal to be received by the data acquisition device ("regulating device is provided such as to process the control device 3 signal into an understandable signal for the tactile output device 8.", Column 2, lines 16-18).

In reference to Claim 6, Lander et al. teaches the simulating unit to be comprised of a processing unit (the "processor" of Column 12, line 54), controller (regulator 32), receiving device (tactile output device), a base (Figure 4), and a sensor ("sensors that are connected to the tactile output device", Column 14, lines 1-2). They further teach the receiving device to receive an interfacing body part from the receiving user ("two human beings to interact with each other by touch.", Column 4, lines 30-31).

In reference to Claim 7, Lander et al. teaches a sensor connected to the broadcasting device for detecting the selected tactile characteristic data of the engaging body part (see Claim 5 rejection *supra*).

In reference to Claim 8, Lander et al. teaches the data acquisition device to receive a signal from a sensor and transmit the information to the transmitting system (see Claim 5 rejection *supra*).

In reference to Claims 9, 26 and 33, Lander et al. teaches a temperature sensor ("temperature changing output", Column 2, line 5).

In reference to Claims 10, 28 and 34, Lander et al. teaches a moisture sensor ("body moisture", Column 8, line 38)

In reference to Claims 29 and 37, Lander et al. teaches a movement sensor capable of sensing vibrations of the engaging body part (Claim 4, Column 16) and relaying the signal to the data acquisition device (see Claim 5 rejection *supra*).

In reference to Claim 30, Lander et al. teaches the receiver to be hand shaped ("a human hand", Figures 2-4).

In reference to Claim 32, Lander et al. teaches the electronic tactile simulation data to be received from a remote source (Claim 10, Column 16).

4. Claims 11-23, 27, 31, 35-36 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lander et al., US Patent 5982880 and Shrader, US Patent 6639582, and further in view of Tremblay et al., US Patent 6424333.

Lander et al. and Shrader teach the virtual remote touching system of Claim 8 as seen *supra* sensing various tactile feelings and transmitting them across a network to be simulated on an identical receiving device and vice versa. While Lander et al. and Shrader teach such a touching system, they fail to show the system sensing the

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surface's roughness, as in Claims 11 and 35, or it's hardness, as in Claims 12 and 27, of the engaging body part as recited in the claims. Tremblay et al. teaches a sensing and transmitting device similar to that of Lander et al. and Shrader. In addition, Tremblay et al. further teaches sensing other characteristics of the engaging body part such as roughness (Column 16, line 54 – Column 17, line 5) or hardness ("Force or pressure sensors", Column 13, lines 55-56). It would have been obvious to one of ordinary skill in the art, having the teachings of Lander et al. and Shrader and Tremblay et al. before him at the time the invention was made, to modify the virtual remote touching system with identical sensing/receiving devices taught by Lander et al. and Shrader to include the sensing of roughness and hardness qualities of Tremblay et al., in order to obtain another characteristic to be sensed and transmitted. One would have been motivated to make such a combination because an additional tactile characteristic for more realistic simulation would have been obtained, as taught by Tremblay et al.

In reference to Claim 13, Lander et al. teaches the detecting sensor to send an indicating signal to the controller so that the controller receives the signal and compares it to the current electronic simulation data ("the new value is subtracted from the old value to determine if there is a difference of the two", Column 4, lines 22-23).

In reference to Claim 14, Lander et al. teaches the receiving device to be made of a synthetic polymeric material ("artificial limb describes any device, that is Dermatologically compatible with a users skin", Column 3, lines 28-30).

In reference to Claim 15, Lander et al. teaches a temperature sensor for detecting the temperature of the receiving device and relaying the indicating signal (See Claim 9 rejection *supra*)

In reference to Claim 16, Lander et al. teaches a moisture sensor for detecting the moisture content of the receiving device and relaying the indicating signal (See Claim 10 rejection *supra*).

In reference to Claims 17 and 36, Lander et al. and Shrader teach the virtual remote touching system as seen *supra* sensing various tactile feelings and transmitting them across a network to be simulated on a receiving device. While Lander et al. and Shrader teach such a touching system, they fail to show the system sensing the inner surface's hardness, as recited in Claims 17 and 36, of the engaging body part as recited in the claims. Tremblay et al. teaches a sensing and transmitting device similar to that of Lander et al. and Shrader. In addition, Tremblay et al. further teaches sensing the hardness (See Claim 12 rejection *supra*) of the inner surface ("various portions internal to, and on the surface of, a physical measured body part", Column 17, lines 2-3). It would have been obvious to one of ordinary skill in the art, having the teachings of Lander et al. and Shrader and Tremblay et al. before him at the time the invention was made, to modify the virtual remote touching system taught by Lander et al. and Shrader to include the sensing of hardness qualities of an inner surface of Tremblay et al., in order to obtain a sensing system for internal hardness. One would have been motivated to make such a combination because an additional tactile characteristic for more realistic simulation would have been obtained, as taught by Tremblay et al.



In reference to Claim 18, Lander et al. teaches the receiver to be handshaped ("a human hand", Figures 2-4).

In reference to Claims 19 and 31, Lander et al. teaches the receiver to be mouth shaped ("Any means stimulating the tactile sensory system of a living being can be integrated into this system", Column 14, lines 53-54 and Figure 1)

In reference to Claim 20, Lander et al. teaches a temperature and moisture sensors (Seen *supra*, in the rejection of Claims 9 and 10)

In reference to Claims 21 and 38, Lander et al. and Shrader and Tremblay et al. teach a moisture sensing and reproduction apparatus (Claim 10 rejection *supra*, and Column 16, line 54 – Column 17, line 5 of Tremblay et al.). However, all fail to teach a moisture removing apparatus capable of blowing drying air in the direction of the receiving device to remove moisture from the receiving device as recited in the claims. It would be obvious to one of ordinary skill in the art to include the moisture removing apparatus with blow drying capabilities to implement the moisture control system taught by Lander et al. and Shrader and Tremblay et al. One would have been motivated to make such a combination because a moisture reducing apparatus for real-time or faster response to stimulus moisture reduction would have been obtained.

In reference to Claims 22 and 40, Lander et al. teaches a temperature regulating apparatus capable of controlling the temperature according to the temperature of the input (See Claim 9 rejection *supra*).

In reference to Claims 23 and 39, Lander et al. teaches the receiving device to be made of a flexible polymer interface cable of deforming (See Claim 14 rejection *supra*, and “flexible material 50”, Column 3, line 6).

### ***Response to Arguments***

Applicant's arguments filed 6/1/2004 with respect to claims 2-42 have been considered but are moot in view of the new ground(s) of rejection.

In response to the argument that Lander et al. only transmits data in a single direction the examiner points out the newly applied reference Shrader with respect to the amended Claims 24, 41 and new Claim 42. Lander et al. does permit two persons to transmit tactile information from one person to the other (“The system of the present invention is particularly adapted for two human beings to interact with each other by touch.”, Column 4, lines 28-30 and Column 3, line 65 – Column 4, line 4) but does not teach substantially identical devices. Therefore, Claims 24, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lander et al., in view of Shrader *supra*. The rejection of the dependent Claims stand the same in further view of Shrader with respect to the new limitations of the independent claims only.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar sensory interfaces and tactile response devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara M Hanne whose telephone number is (703) 305-0703. The examiner can normally be reached on M-F 7:30am-4:00pm, off on alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather R Herndon can be reached on (703) 308-5186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

smh

BA HUYNH  
PRIMARY EXAMINER